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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,327	07/28/2003	Tamer Abdel Mottalib ElBatt	B-4419NP 621007-7	6590

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EXAMINER	
PAYNE, DAVID C	

ART UNIT	PAPER NUMBER
2613	

DATE MAILED: 08/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/629,327	ELBATT ET AL.	
	Examiner	Art Unit	
	David C. Payne	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1, 8, 13, 14, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Gantenbein et al. US 4809257 (Gantenbein).

Re claims 1, 8, 13, 14, 15, Gantenbein disclosed,
According to the invention, transceivers of data transmitting and receiving units are assigned to different categories having a hierarchical scale of transmission power and receiving sensitivity, so that some data transmissions are only effective in close neighborhood thus allowing simultaneous transmission in different local regions, whereas also data communications from one end of the system to the other are possible. To allow orderly access even if data of an ongoing transmission are not correctly received, each unit that detected a preamble carrier signal preceding each packet transmission observes a time-out and simultaneously tries to decode received data signals and their end delimiter so as to have at least one of two possible bases for establishing a reference point for a subsequent attempt to access the transmission medium, without interfering with an ongoing transmission. The provision of selecting or enabling bits in each transmission frame allows for selective activation (or inhibition) of units that may be receiving the frame but should not use or forward it.

The IR transmission network architecture introduced by the invention supports slow, battery-powered devices as well as fast, balance-mode communication between workstations. All kinds of stations and devices can use the infrared channel in a common way.

It is an object of the invention to provide a communication system exchanging information between several data handling units, which is based on infrared signal transmission and allows efficient data traffic despite a great number of participating stations.

It is another object to device an IR local communication network that allows an orderly access to the infrared transmission medium even if the transmitted IR signals that are received by any unit from different devices or stations are of considerably different strength.

Another object of this invention is an IR communication system that allows selective paths or configurations to be established by device selection to avoid the distribution of IR signals representing data packets to units where they are not required to go thus reducing the changes of interference between different communication sessions.

It is a further object to provide an IR communication network design that allows interconnection of a large number of workstations and I/O devices of different capabilities, distributed over an extended area, with a minimum in mutual disturbance.

It is a further object to provide a communication system which can exchange data between several data handling units, providing above mentioned features and which uses for the transmission of data signals either the infrared medium exclusively or mixed media including cables, so that some units may be interconnected by infrared means and others by wires, depending on the transmission distance and other considerations.

e.g. Col./Lines: 2/5-60

3. Claims 1-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Achour et al. US 6928248 B2 (Achour).

Re claims 1, 8, 13, 14, 15, Achour disclosed,

A device for operationally switching between line-of-sight wireless communications systems between stations includes, at each station, a laser beam transceiver, which is an example of a wireless transceiver, a microwave beam transceiver, and a switch for changing from one transceiver to the other. Specifically, the purpose here is to optimize the transmission of data over the systems from station to station by using the higher data transmission rate of the laser beam transceiver, whenever possible. To do this, it must first be determined whether the laser beam transceiver is operationally functional. If the laser beam transceiver (optical link) is not operationally functional, the more rugged, but slower, microwave beam transceiver (back-up link) is used as a back-up. In particular, the optical link could use lasers, light emitting diodes, or other light sources for the carrier, and the back-up microwave link could also be a millimeter wave link, a copper cable, or some other secondary communications link. More generally, the system could be used for switching between a primary line of sight communications link (which could be optical or millimeter wave) and a secondary communications link.

At all times during the operation of the present invention, the optical signal is monitored as it is received by the laser beam transceiver. Specifically, this is done to determine the received signal strength intensity (RSSI) of the optical signal. Using this RSSI, a bit error rate (BER) is calculated. The BER is then compared with a reference rate, above which the laser beam transceiver is not operationally functional. Generally, as intended for the present invention, whenever the BER is above the reference rate, the switch will change from the laser beam transceiver to the microwave beam transceiver. Further, the switch will stay with the microwave beam transceiver until the BER

goes back below the reference rate. These changes, however, are accomplished in accordance with a variable timed sequence regimen, and with due consideration given to background noise.

(The variable timed sequence regimen of the present invention relies on the concerted operation of a first delay circuit and a second delay circuit. Specifically, with the first delay circuit, the transmission and reception of the signal is continued using the laser beam transceiver for a time interval (.DELTA.t) immediately after the BER goes above the reference rate. If the BER, however, remains above the reference rate beyond the time interval (.DELTA.t), the switch changes to the microwave beam transceiver. The transmission and reception of the signal is then accomplished by the microwave beam transceiver as long as the BER remains above the reference rate. With the second delay circuit, the microwave transceiver continues in use until the BER on the laser transceiver goes back below the reference rate and stays below the reference rate for a time interval .gtoreq.(.DELTA..tau.). This is done to ensure the laser system has stabilized before it is again put into use. In the event there is an instability (e.g. a situation wherein there are rapid changes of the BER back and forth across the reference rate), the switching device of the present invention adjusts the way in which the laser system is monitored. Specifically, when there is an instability, the device decrements the first time interval (.DELTA.t) and increments the second time interval (.DELTA..tau.). This is done each time there have been an n consecutive number of changes in the BER from below the reference rate to above the reference rate within a predetermined time period (T). In this case the total time (T) is determined by the expression: T=n(.DELTA.t+.DELTA..tau.). On the other hand, after the laser system has stabilized, the switching device will reset the first time interval (.DELTA.t) and the second time interval (.DELTA..tau.) to their original values. Specifically, this is done whenever there have been less than an n number of changes in the BER from below the reference rate to above the reference rate within the total time period (T).

An additional feature of the present invention is provided which accounts for the possibility that direct sunlight may increase the noise level in a laser beam transceiver. The present invention accounts for this possibility by recognizing that the laser beam (carrier wave) will have a higher d.c. level (noise) that results from the direct sunlight. This d.c. level, unfortunately, can corrupt the optical signal in any of several ways. Nevertheless, regardless of the manner in which the signal is corrupted, the d.c. level can be monitored so that the switching device will change to the microwave system whenever the d.c. level becomes intolerable, e.g. Col./Lines: 2/35-67; 3/1-50.

Re claims 2, 9, Achour disclosed,

The operation of the communications link 10 relies primarily on the concerted functioning of an optical detector 34 (FIG. 2) and a switching mechanism 36 (FIG. 3). Operationally, the optical detector 34 is incorporated as a subassembly of the transceivers 16/16', while the switching mechanism 36 is mounted within the switches 20/20'. Functionally, the optical detector 34 operates according to the logic flow chart shown in FIG. 2, and the switching mechanism 36 operates according to the logic flow chart shown in FIG. 3. Together, the optical detector 34 and the switching mechanism 36 operate to

maximize the data throughput of the link 10 while maintaining an acceptable BER. Specifically, this is done by preferably using the higher data rate transmission capabilities of the transceivers 16/16'. According to the present invention this is basically done in a two-step process. First, the optical detector 34 is used to determine whether the carrier wave 24 is suitable for transmitting and receiving data. Second, the switching mechanism 36 determines the timed sequence in which communications are to be switched between one system (transceivers 16/16') and another system (transceivers 18/18'). The object here, of course is to maximize the effective operation of the transceivers 16/16', e.g. Col./Lines: 4/42-65.

Re claims 3, 4-6, 10-12, 16-18, Achour disclosed,

The operation of the communications link 10 relies primarily on the concerted functioning of an optical detector 34 (FIG. 2) and a switching mechanism 36 (FIG. 3). Operationally, the optical detector 34 is incorporated as a subassembly of the transceivers 16/16', while the switching mechanism 36 is mounted within the switches 20/20'. Functionally, the optical detector 34 operates according to the logic flow chart shown in FIG. 2, and the switching mechanism 36 operates according to the logic flow chart shown in FIG. 3. Together, the optical detector 34 and the switching mechanism 36 operate to maximize the data throughput of the link 10 while maintaining an acceptable BER. Specifically, this is done by preferably using the higher data rate transmission capabilities of the transceivers 16/16'. According to the present invention this is basically done in a two-step process. First, the optical detector 34 is used to determine whether the carrier wave 24 is suitable for transmitting and receiving data. Second, the switching mechanism 36 determines the timed sequence in which communications are to be switched between one system (transceivers 16/16') and another system (transceivers 18/18'). The object here, of course is to maximize the effective operation of the transceivers 16/16', e.g. Col./Lines: 4/42-65.

Re claims 7, 19, Achour disclosed,

An additional feature of the present invention is provided which accounts for the possibility that direct sunlight may increase the noise level in a laser beam transceiver. The present invention accounts for this possibility by recognizing that the laser beam (carrier wave) will have a higher d.c. level (noise) that results from the direct sunlight. This d.c. level, unfortunately, can corrupt the optical signal in any of several ways. Nevertheless, regardless of the manner in which the signal is corrupted, the d.c. level can be monitored so that the switching device will change to the microwave system whenever the d.c. level becomes intolerable, e.g. Col./Lines: 3/38-49.

4. Claims 1, 8, 13, 14, 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Kolinko et al. (Kolinko).

Re claims 1, 8, 13, 14, 15, Kolinko disclosed,

The present invention provides high performance transceivers for wireless, millimeter wave communications links at frequencies in excess of 70 GHz. A preferred embodiment built and tested by Applicants is described. This embodiment provides a communication link of more than eight miles which operates within the 71 to 76 GHz portion of the millimeter spectrum and provides data transmission rates of 1.25 Gbps with bit error rates of less than 10-10. A first transceiver transmits at a first bandwidth and receives at a second bandwidth both within the above spectral range. A second transceiver transmits at the second bandwidth and receives at the first bandwidth. The transceivers are equipped with antennas providing beam divergence small enough to ensure efficient spatial and directional partitioning of the data channels so that an almost unlimited number of transceivers will be able to simultaneously use the same spectrum. In a

preferred embodiment the first and second spectral ranges are 71.8+/-0.63 GHz and 73.8+/-0.63 GHz and the half power beam width is about 0.2 degrees or less. Preferably, a backup transceiver set is provided which would take over the link in the event of very bad weather conditions, e.g. paragraph 8.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Payne whose telephone number is (571) 272-3024. The examiner can normally be reached on M-F, 7:00a - 4:30p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dcp

David C. Payne
Primary Examiner
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